

Appln No. 09/825,599

Amdt date March 1, 2005

Reply to Office action of December 3, 2004

Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 1a, 1b, 1c, and 1d replace the original sheets including Figs. 1a, 1b, 1c, and 1d. Annotated copies thereof showing the changes made are also included.

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REMARKS/ARGUMENTS

Claims 1, 3 - 5, 7, and 8 are now in the application. Claims 2 and 6 have been cancelled. Claims 1, 4, 5, and 8 have been amended.

The Examiner objected to Figures 1a - 1d stating that these figures should be designated as "Prior Art." Appropriately amended drawings corresponding to these figures are enclosed with this Amendment.

The Examiner objected to the specification because it fails to include relevant U.S. patent application numbers or patent numbers of the applications and patents referred to on page 1 of the Application. The specification has been amended to correct this informality. A paragraph describing Fig. 12 of the Application has also been amended for minor typographical errors.

The Examiner objected to Claims 4 and 8 for using "the" instead of "a."

Claims 4 and 8 are amended to correct the informality.

The Examiner rejected Claims 1 - 3 and 5 - 7 under 35 U.S.C. §102(b) as being anticipated by Wittman (U.S. Patent 4,595,802).

Independent Claims 1 and 5 are amended to include the limitations of Claims 2 and 6, respectively. Claims 2 and 6 are canceled.

The Examiner rejected Claim 1 citing to figures 1 and 2 and column 2, lines 44 - 68 of Wittman. To reject Claim 2, the Examiner reasoned that it was inherent that the transfer ratio between the transmit coil and the coil across the twisted pair

Appln No. 09/825,599

Amdt date March 1, 2005

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and the transfer ratio between the receive coil and the coil across the twisted pair must be optimized by optimizing transmit coil to coil across the twisted pair turns ratio, i.e. 21a:(19a+19b) in figures 1 and 2 of Wittman, and receive coil to coil across the twisted pair turns ratio, i.e. 21b:(19a+19b), to maximize respective transmit path and receive path signal to noise ratios because line impedance is matched by the transformer, therefore, line interference/noise is minimized.

The Applicants' amended Claim 1 calls for (underlining added for emphasis) "wherein the transfer ratio between the transmit coil and the coil across the twisted pair and the transfer ratio between the receive coil and the coil across the twisted pair are optimized by optimizing transmit coil to coil across the twisted pair turns ratio and receive coil to coil across the twisted pair turns ratio to maximize respective transmit path and receive path signal to noise ratios." The Examiner does not cite to a section of Wittman, in addition to the sections cited against Claim 1, to reject the limitations of Claim 2 that are now incorporated into amended Claim 1. Rather, the Examiner concludes that it is inherent that transfer ratios must be optimized by optimizing turns ratios in order to maximize signal to noise ratios. As support for this determination, the Examiner reasons that line interference/noise is minimized when line impedance is matched by a transformer. The Applicants respectfully disagree.

First, amended Claim 1 recites "to maximize respective transmit path and receive path signal to noise ratios." It does not recite impedance matching per se. Further, the turns ratio

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on the line side of the transformer of Wittman stays at (19a+19b). Now, if in 21a:(19a+19b) the impedances are matched, in 21b:(19a+19b), they will not be matched unless 21a is equal to 21b. See figures 1 and 2 of Wittman. In other words, matching the impedance of one set results in a mismatch in the other.

Second, impedance matching typically by itself does not minimize noise. The usual purpose of impedance matching is generally maximizing power transfer to the load. At the same time, more standard methods of minimizing noise are grounding to optimize common mode rejection ratio (CMRR). Wittman does not mention the word noise and is directed to increasing the power efficiency of its circuit by replacing an RC circuit with an operational amplifier. As such, Wittman does not talk about the winding turns ratios and does not support the conclusion that impedance matching is inherently good for noise reduction.

Accordingly, the Applicants submit that Claim 1, as amended to include the limitations of Claim 2, is not anticipated by Wittman under 35 U.S.C. §102(b).

Claim 3 is dependent on Claim 1. As such, this claim is believed allowable based upon Claim 1.

The Examiner states that Claims 5 - 7 are apparatus claims corresponding to method claims 1 - 3 and are rejected under 35 U.S.C. §102(b) for the same reasons as the method claims.

Claim 5 is amended to include the limitations of Claim 6. Claim 6 is canceled.

Amended Claim 5 is distinguished over Wittman for reasons similar to that cited for Claim 1. Claim 7 is dependent on

Appln No. 09/825,599

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Claim 5. As such, this claim is believed allowable based upon Claim 5.

The Examiner rejected Claims 4 and 8 under 35 U.S.C. §103(a) as being unpatentable over Wittman finding the undisclosed limitations of these claims obvious and routine.

Amended Claim 4 depends from amended Claim 1 and amended Claim 8 depends from amended Claim 5. These claims are believed allowable based on Claims 1 and 5 respectively.

Accordingly, in view of the above amendment and remarks it is submitted that the claims are patentably distinct over the cited references and that all the rejections to the claims have been overcome. Reconsideration of the above Application and allowance of pending claims 1, 3 - 5, 7, and 8 is respectfully requested.

Respectfully submitted,
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